the second opposing surface of the layer of adhesive in substantially vertical orientation, the fiber first portions terminating in tips above the second opposing surface of the layer of adhesive; and

an encapsulant comprising a gel between the first portions of the fibers and over the adhesive.

5. The thermally conductive structure of claim 4 wherein the tips of the fibers extend to above the encapsulant.

6. The thermally conductive structure of claim 4 wherein the gel comprises a polymer.

7. The thermally conductive structure of claim 4 wherein the thermally conductive fibers are selected from the group consisting of carbon fibers, metal fibers, and ceramic fibers.

8. The thermally conductive structure of claim 4 wherein the thermally conductive fibers are selected from the group consisting of graphite fibers and diamond fibers.

9. The thermally conductive structure of claim 4 wherein the thermally conductive fibers are carbon fibers.

10. The thermally conductive structure of claim 4 wherein the encapsulant is on the second opposing surface of the layer of adhesive.

11. The thermally conductive structure of claim 4 wherein the fibers have second portions which extend downwardly to at or below the first opposing surface of the layer of adhesive.

12. A thermally conductive structure, comprising:

a layer of adhesive having a pair of opposing surfaces, the opposing surfaces being a first opposing surface and a second opposing surface;

a plurality of thermally conductive fibers embedded in the adhesive, the fibers having first portions which extend out of the second opposing surface of the layer of adhesive and upwardly from the second opposing surface, the first portions terminating in tips above the second opposing surface of the layer of adhesive, the tips being at a same height above the second opposing surface as one another; the thermally conductive fibers being selected from the group consisting of carbon fibers, metal fibers, and ceramic fibers; and

an encapsulant comprising a gel between the first portions of the fibers and over the adhesive.

13. The thermally conductive structure of claim 12 wherein the upwardly extending first portions are parallel to one another and perpendicular to the second opposing surface.

14. The thermally conductive structure of claim 12 wherein the thermally conductive fibers are carbon fibers.

15. The thermally conductive structure of claim 12 wherein the tips of the fibers extend to above the encapsulant.

16. The thermally conductive structure of claim 12 wherein the encapsulant is on the second opposing surface of the layer of adhesive.

17. The thermally conductive structure of claim 12 wherein the fibers have second portions which extend downwardly to at or below the first opposing surface of the layer of adhesive.

18. A thermally conductive structure, comprising:

a layer of adhesive having a pair of opposing surfaces, the opposing surfaces being a first opposing surface and a second opposing surface;

a plurality of thermally conductive fibers extending through the adhesive, the fibers having first portions which extend out of the second opposing surface of the layer of adhesive, the first portions extending upwardly from the second surface, the upwardly extending first portions being parallel to one another, the first portions terminating in tips above the second opposing surface of the layer of adhesive, the fibers having second portions which extend downwardly to at or below the first opposing surface of the layer of adhesive; the thermally conductive fibers being selected from the group consisting of carbon fibers, metal fibers. and ceramic fibers; and

a gel encapsulant between the first portions of the fibers and on the adhesive.

19. The thermally conductive structure of claim 18 wherein the tips are at a same height above the second opposing surface as one another.

20. The thermally conductive structure of claim 18 wherein the thermally conductive fibers are carbon fibers.

21. A thermally conductive structure, comprising:

a substrate layer having a pair of opposing surfaces, the opposing surfaces being a first opposing surface and a second opposing surface, the first and second surfaces being spaced from one another along a direction defined as a vertical direction;

a plurality of thermally conductive fibers embedded in the substrate layer, the fibers having first portions which extend upwardly out of the second opposing surface of the substrate layer in substantially vertical orientation, the fiber first portions terminating in tips above the second opposing surface of the substrate layer; and

an encapsulant between the first portions of the fibers and over the substrate layer, the encapsulant at least temporarily adhering to the first portions of the fibers.

22. The thermally conductive structure of claim 21 wherein the tips of the fibers extend to above the encapsulant.

23. The thermally conductive structure of claim 21 wherein the substrate layer is an adhesive.

24. The thermally conductive structure of claim 21 wherein the thermally conductive fibers are carbon fibers.

25. The thermally conductive structure of claim 21 wherein the encapsulant is a polymeric gel.

26. A thermally conductive structure, comprising:

a layer of adhesive having a pair of opposing surfaces, the opposing surfaces being a first opposing surface and a second opposing surface;

a plurality of flocked, thermally conductive fibers embedded in the adhesive, the fibers having first portions which extend upwardly out of the second opposing surface of the layer of adhesive in substantially vertical orientation;

an encapsulant between the first portions of the fibers and over the adhesive; and

a third surface defining an outermost surface of the thermally conductive structure except for the fiber first portions terminating in tips above the third surface and the encapsulant.

27. The thermally conductive structure of claim 26 wherein the encapsulant comprises a polymeric gel.

28. The thermally conductive structure of claim 26 wherein the third surface comprises a surface of the encapsulant.

29. The thermally conductive structure of claim 26 wherein the thermally conductive fibers are carbon fibers.

30. The thermally conductive structure of claim 26 wherein the fibers have second portions which extend downwardly to at or below the first opposing surface of the layer of adhesive.

31. A thermally conductive structure, comprising:

a layer of adhesive having a pair of opposing surfaces, the opposing surfaces being a first opposing surface and a second opposing surface, the first and second surfaces being spaced from one another along a direction defined as a vertical direction;

a plurality of flocked, thermally conductive fibers embedded in the adhesive, the fibers having first portions which extend upwardly out of the second opposing surface of the layer of adhesive in substantially vertical orientation, the fiber first portions terminating in tips above the second opposing surface of the layer of adhesive; and

an encapsulant comprising a gel over the adhesive, between the first portions of the fibers, and beneath free tips of the fibers.